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Topic: Flesh-eating fish parasites

Any discussion of parasites should start with some realisation that parasites occur everywhere. You can see on the screen here, the whole range of different parasites. What we find is in about any ecosystem about 50% of all the diversity is in fact parasitic.

Every fish you catch will have a whole range of different parasites from isopods that are on the gills or the skin, flatworms on the fins, worms in the guts, other things in the flesh. So there's a whole range of parasites every fish can have.

Moving into muscle-liquefying parasites- which is a group I'm particularly interested in- you can see here that this is the fillet of a long-tailed tuna that I actually caught in Western Australia. Peppered throughout are all these little white cysts. Once the fish is dead, they release enzymes which break down the proteins in the muscle, i.e. liquefy the flesh, which is not a great outcome when you've pulled out a nice tuna or snapper or something and it falls to pieces in the pan when you're trying to cook it.

The more we look, the more we're finding. This is a local Butter Bream. We find these all over south-east Queensland. Here is a section through the muscle of the Butter Bream and all these slightly darker, granular looking bits are cysts of one of these parasites in the muscle. The fascinating thing about this is that in Ernie Grant, which is the Fisherman's Guide to Fishes, in his book he said that, "They're quite a good pan fish provided they're protected from the sun's heat. Otherwise the flesh becomes mushy and butter-like." Our research has shown that there's about 75% of these Butter Bream, infected with that parasite and that's the reason why their flesh becomes mushy and butter-like.

Talk about size: I'll give you some sort of reference point here. This is the width of a human hair. It's about one-tenth of a millimetre thick and across it there are twelve of these spores of these muscle-liquefying parasites.

The students in my group: I have post graduate students working with me, will likely go on to work with aquatic animal health in Australia and those people are responsible for Biosecurity. For example, if we had an exotic parasite come in with an imported fish, that can have this kind of impact on our local fishery or aquaculture, then it would have massive impacts on the basic commercial ventures.

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